AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for generating frame designs for manufacturing a vehicle, the method comprising:

[[(a)]] obtaining a specification for a plurality of components to be mounted on a frame of a vehicle,

[[(b)]] obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame, [[and]] a range of additional positions to locate the component, and three-dimensional data corresponding to a tessellated representation of the component;

~~after obtaining the processing data corresponding to each of the plurality of components:~~

~~(c) selecting a component of the plurality of components and setting a current position as the logical starting position in the processing data;~~

~~(d) determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame;~~

~~(e) if an interference occurs, setting a next position in the range of additional positions defined in the processing data as the current position for the selected component and repeating (d);~~

~~(f) if no interference occurs, configuring the selected component to the frame at the current position;~~

~~(g) repeating (d) (f) for any remaining components of the plurality of components;~~ ~~and~~

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for each component of the plurality of components:

selecting the logical starting position as the current position for the selected component; and

repeatedly:

determining whether the selected component at the current position coincides with a hole in the frame through which the selected component may be attached to the frame, and whether the tessellated representation of the selected component located at a current position interferes with the tessellated representation of any other component previously configured to the frame; and

selecting a next position in the range of additional positions if the selected component does not coincide with a hole through which the selected component may be attached to the frame, or if the tessellated representation of the selected component located at a current position interferes with the tessellated representation of any other component already configured to the frame;

until the current position coincides with a hole in the frame through which the selected component may be attached to the frame and the tessellated representation of the selected component located at a current position does not interfere with the tessellated representation of any other component already configured to the frame;

configuring the selected component to the frame at the position corresponding to a matching hole; and

[[(h)]] generating a frame design corresponding to the configured positions for each of the plurality of components.

2. (Original) The method as recited in Claim 1, wherein determining whether the tessellated representation of the selected component located at the current position interferes with

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the tessellated representation of any other components already configured to the frame includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame.

3. (Original) The method as recited in Claim 1, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component.

4. (Previously presented) The method as recited in Claim 1, wherein obtaining a specification for the plurality of components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface.

5. (Original) The method as recited in Claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to the frame.

6. (Currently amended) The method as recited in Claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to another component already configured to the frame.

7. (Currently amended) The method as recited in Claim 1, wherein the range of additional positions to locate the component includes at least one additional position between a maximum dimensional measurement in a first direction from the logical starting position.

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8. (Currently amended) The method as recited in Claim 7, wherein the range of additional positions to locate the component further includes at least one additional position between a second maximum dimensional measurement in a second direction from the logical starting position.

9. (Canceled)

10. (Currently amended) The method as recited in Claim 1, wherein each of the plurality of components corresponds to ~~one or more~~ at least two pieces of geometry.

11. (Previously presented) The method as recited in Claim 1, wherein obtaining processing data corresponding to the plurality of components includes traversing a tree structure to select a set of processing data.

12. (Original) The method as recited in Claim 11, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position.

13. (Original) The method as recited in Claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a three-dimensional representation of the frame design.

14. (Original) The method as recited in Claim 1, wherein generating a frame design corresponding to the configured positions for each of the one or more components includes generating a textual file of the frame design.

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15. (Original) A computer-readable medium having computer-executable instructions for performing the method recited in Claim 1.

16. (Original) A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in Claim 1.

17. (Currently amended) A ~~method~~ computer system suitable and configured for generating frame designs for manufacturing a vehicle, the ~~method~~ computer system comprising:

a processor that executes computer-executable instructions; and

a memory, the memory storing data and computer-executable modules comprising computer-executable instructions;

wherein, upon execution of one or more computer-executable module, the computer system is configure to:

~~(a) obtaining~~ obtain a specification for a plurality of components to be mounted on a frame of a vehicle,

~~(b) obtaining~~ obtain processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame, [[and]] a range of additional dimensional positions to locate the component, and three-dimensional data corresponding to a tessellated representation of the component;

~~after obtaining the processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle:~~

~~(c) selecting a component of the plurality of components and setting a current position as the starting position in the processing data;~~

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~~(d) configuring a position for the selected component based upon determining whether a tessellated representation of the selected component interferes with the tessellated representation of any other components already configured to the frame;~~

~~(e) repeating (d) for any remaining components of the plurality of components; and~~

for each component of the plurality of components:

select the logical starting position as the current position for the selected component; and

repeatedly:

determine whether the selected component at the current position coincides with a hole in the frame through which the selected component may be attached to the frame, and further determine whether the tessellated representation of the selected component located at a current position interferes with the tessellated representation of any other component already configured to the frame; and

select a next position in the range of additional positions if the selected component fails to coincide with a hole through which the selected component may be attached to the frame, or if the tessellated representation of the selected component located at a current position interferes with the tessellated representation of any other component already configured to the frame;

until the current position coincides with a hole in the frame through which the selected component may be attached to the frame and the tessellated representation of the selected component located at a current position does not interfere with the tessellated representation of any other component already configured to the frame;

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configure the selected component to the frame at the current position corresponding to a matching hole; and

~~(f) generating~~ generate a frame design corresponding to the configured positions for each of the plurality of components.

18. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein ~~determining~~ the computer system determines whether a tessellated representation of the selected component interferes with the tessellated representation of any other components already configured to the frame ~~includes~~ by iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame.

19. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein ~~determining~~ the computer system determines whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame ~~includes~~ by determining whether the selected component located at the current position is located within another configured component.

20. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein ~~obtaining~~ the computer system obtains a specification of the plurality of components to be mounted on a frame of a vehicle ~~includes~~ by obtaining a list of required components from a user interface.

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21. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to the frame.

22. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to another component.

23. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein the range of additional positions to locate the component includes at least one additional position between a maximum dimensional measurement in a first direction from the logical starting position.

24. (Currently amended) The ~~method~~ computer system as recited in Claim 23, wherein the range of additional positions to locate the component further includes at least one additional position between a second maximum dimensional measurement in a second direction from the logical starting position.

25-26. (Canceled)

27. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein ~~generating~~ the computer system is configured to generate a frame design corresponding to the configured positions for each of the plurality of components ~~includes~~ by generating a three-dimensional representation of the frame design.

28. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein ~~generating~~ the computer system is configured to generate a frame design corresponding

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to the configured positions for each of the plurality of components ~~includes~~ by generating a textual file of the frame design.

29. (Currently amended) The ~~method~~ computer system as recited in Claim 17, wherein ~~obtaining~~ the computer system is configured to obtain processing data corresponding to the plurality of components ~~includes~~ by traversing a tree structure to select a set of processing data.

30. (Currently amended) The ~~method~~ computer system as recited in Claim 29, wherein the tree structure includes two or more sets of processing data for a selected component and wherein ~~setting~~ the computer system selects a next position in the range of additional positions defined in the processing data ~~includes~~ by selecting a new set of processing data and obtaining a next position.

31-32. (Canceled)

33. (Currently amended) A computer-readable medium having computer-executable modules for generating frame designs for manufacturing a vehicle, the computer-executable modules comprising:

an interface module for obtaining a specification of a plurality of components to be mounted on a frame of a vehicle and for transmitting a frame design corresponding to a configuration of the components mounted on the frame of the vehicle;

a processing data module for storing processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data includes location information corresponding to a logical starting position for attempting to locate

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a component on the frame and a range of additional positions to locate the component and three-dimensional data corresponding to a tessellated representation of the component; and

a configuration module for obtaining the processing data corresponding to each of the plurality of components to be mounted on the frame and, after obtaining the processing data, ~~configuring a location for a selected component of the plurality of components to be mounted on a frame of a vehicle based upon an interference check corresponding to comparison of a tessellated representation of the selected component interferes with the tessellated representation of any other components already configured to the frame~~ and for each of the plurality of components:

select the logical starting position of the current component as a current position for the current component;

repeatedly:

determine whether the current component at the current position coincides with a hole in the frame through which the current component may be attached to the frame, and further determine whether the tessellated representation of the current component located at a current position interferes with the tessellated representation of any other component already configured to the frame; and

select a next position in the range of additional positions if the current component fails to coincide with a hole through which the current component may be attached to the frame, or if the tessellated representation of the current component located at a current position interferes with the tessellated representation of any other component already configured to the frame;

until the current position coincides with a hole in the frame through which the current component may be attached to the frame and the tessellated representation of the current

component located at a current position does not interfere with the tessellated representation of any other component already configured to the frame; and

configure the current component to the frame at the current position corresponding to a matching hole;

wherein upon execution of the executable modules on a computing device, configure the computing device to generate a frame design of a vehicle according to the configured positions of each of the plurality of components.

34. (Original) The computer-readable medium as recited in Claim 33, wherein the interference check includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame.

35. (Original) The computer-readable medium as recited in Claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to the frame.

36. (Original) The computer-readable medium as recited in Claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to another component.

37. (Original) The computer-readable medium as recited in Claim 33, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position.

38. (Original) The computer-readable medium as recited in Claim 37, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position.

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39-40. (Canceled)

41. (Original) The computer-readable medium as recited in Claim 33, wherein the processing module selects the processing data by traversing a tree structure.

42. (Original) The computer-readable medium as recited in Claim 41, wherein the tree structure includes two or more set of processing data for a selected component and wherein the configuration module selects a next position in the range of additional positions defined in the processing data by selecting a new set of processing data from the processing module and obtaining a next position for the component from the new set of processing data.

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